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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,003	07/06/2001	Oliver Landolt	06618/664001 / CIT 3239	8772
20985	7590	10/15/2003	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			SOHN, SEUNG C	
			ART UNIT	PAPER NUMBER
			2878	
DATE MAILED: 10/15/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/682,003

Applicant(s)

LANDOLT, OLIVER

Examiner

Seung C. Sohn

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 and 20-51 is/are pending in the application.
- 4a) Of the above claim(s) 7-14, 20, 21 and 27-38 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40-51 is/are allowed.
- 6) ☒ Claim(s) 1-6, 15-18, 22-26 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. **Claims 22 and 23** are objected to because of the following informalities:  
Claims 22 and 23 must be dependant claims of claim 18, not of canceled claim 19. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. ***Claims 1-4, 15-18, 24-26 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Hashimoto (Patent No. US 5,717,200).***

Referring to claim 1, Hashimoto shows in Figs. 1-2 the following elements of Applicant's claim:

- a) a photoreceptor circuit (6, i.e., CCD) (Col. 3, lines 17-19);
- b) an optical system, including an element (5, i.e., scanning mirror) that changes a position of image information relative to said photoreceptor circuit (Col. 4, lines 49-52); and

c) a processing circuit (10 to 21), operating to produce pulsed outputs at timings that are dependent on changes of said image information (Col. 5, lines 3-11).

**Referring to claim 2**, Hashimoto discloses that said photoreceptor circuit (506) is formed on a semiconductor substrate, and said processing circuit (512) is formed on the same semiconductor substrate as said photoreceptor circuit (Col. 4, lines 7-8).

**Referring to claim 3**, Hashimoto discloses that said processing circuit includes a circuit that changes spatial variations in light intensity into temporal fluctuations formed by digital pulses (Col. 6, lines 27-35).

**Referring to claim 4**, Hashimoto discloses that said processing circuit encodes changes in said output signal which are either in positive directions or negative directions into said digital pulses (Col. 2, lines 33-50).

**Referring to claim 15**, Hashimoto shows in Figs. 1-2 the following steps of Applicant's claim:

a) acquiring image information using a first element (6) (Col. 3, lines 17-19);

b) using a second element (5) to move a position of image information that is acquired by said first element (Col. 4, lines 49-52); and

c) processing said image information acquired by said first element, to obtain temporal information about said image information (Col. 5, lines 3-11).

**Referring to claim 16**, Hashimoto discloses that said temporal information includes pulses (Col. 5, line 10).

**Referring to claim 17**, Hashimoto discloses using said pulses, and timing of said pulses, to determine information about said image (Col. 4, lines 54-61).

**Referring to claim 18**, Hashimoto shows in Figs. 1-2 the following elements of Applicant's claim:

a) a photoreceptor circuit (6), formed on a semiconductor substrate, and including a plurality of photoreceptor elements, and a plurality of amplifiers, with an amplifier associated with each of said photoreceptor elements (Col. 4, lines 45-52);

b) an optical position moving element (5), operating to change a position where an incoming image scene contacts said photoreceptor circuit (Col. 4, lines 41-44); and

c) a processing circuit (10 to 21), formed on said semiconductor substrate, and having a processing part associated with each said photoreceptor element, said processing circuit producing an output indicative of temporal fluctuation of information received by said photoreceptor element resulting from spatial features in said incoming scene moving over said photoreceptor circuit (Col. 5, lines 3-13).

**Referring to claim 24**, Hashimoto discloses using information about phase locking of said pulses to determine information about a spatial pattern in the image (Col. 6, lines 31-35).

**Referring to claim 25**, Hashimoto discloses obtaining a histogram indicating a number of spikes occurring as a function of position of a given integration time, and using said histogram to determine information about said image (Col. 9, lines 46-60).

**Referring to claim 26**, Morokawa discloses a sensor, determining a position of said optical position moving element, and wherein said processing circuit operates using information from said sensor.

**Referring to claim 39**, Hashimoto discloses the following steps of Applicant's claim:

a) moving some aspect of electromagnetic energy (light) relative to an array of photoreceptors (6, i.e., CCD) (Col. 1, lines 55-58); and

b) sensing the information about said electromagnetic energy (light) that is independent of any fixed pattern noise in said array of photoreceptors by generating and processing temporal pulses from each photoreceptor caused by the movement to extract spatial features in said electromagnetic energy (Col. 6, lines 27-44).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 5-6 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (Patent No. US 5,717,200) in view of McJohnson (Patent No. US 3,986,000).**

Referring to claim 5 and 22, Hashimoto discloses a photoreceptor element (Fig. 1, 6, CCD), but does not disclose a logarithmic amplifier associated with said photoreceptor element. McJohnson shows in Fig. 3 a logarithmic amplifier (21b). It would have been obvious to a person having ordinary skill in the art to provide a logarithmic amplifier of McJohnson in the device of Hashimoto for the purpose of minimizing variation in amplitude (Col. 1, lines 58-61).

Referring to claims 6 and 23, Hashimoto discloses as above, but does not disclose a differentiation element and a half wave rectification element. McJohnson shows in Fig. 3 a differentiation element (21c) and a half wave rectification element (21e). It would have been obvious to a person having ordinary skill in the art to provide a differentiation element and a half wave rectification element of McJohnson in the device of Hashimoto for the purpose of normalizing signals (Col. 5, line 60 – Col. 6, line 11).

#### ***Allowable Subject Matter***

**6. Claims 40-51 are allowed.**

7. The following is a statement of reasons for the indication of allowable subject matter:

**Claims 40-51** are allowable because the prior art fails to disclose or make obvious, either singly or in combination, a system comprising, in addition to the other recited features of the claim, "each pixel processing circuit produces temporal pulses in response to a variation in light received by a respective sensing pixel caused by the image moving relative to said image sensor, and said temporal pulses have spatial information of the image with a spatial resolution pitch less than a spacing between two adjacent sensing pixels".

### **Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seung C. Sohn whose telephone number is (703) 308-4093. The examiner can normally be reached on Monday through Friday from 8:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SCS  
October 1, 2003

  
**KEVIN J. MCNAMEE**  
**PRIMARY EXAMINER**